

REMARKS

Applicants, their principal representatives in Germany, and the undersigned have carefully reviewed the first Office Action of January 25, 2008 in the subject U.S. patent application, in which the time for response is being extended by one month, together with the prior art cited and relied on. In response, several of the claims have been amended, several have been withdrawn from consideration and several others have been cancelled. It is believed that the claims which are now pending in the subject U.S. application are patentable over the prior art cited and relied on, taken either singly or in combination. Reexamination and reconsideration of the application, and allowance of the claims is respectfully requested.

During a review of the Substitute Specification, a minor typographical error was noted in paragraph 026. That error has been corrected. The correction does not add any new matter and its entry is requested.

As described in the Substitute Specification, as depicted in the drawings and as recited in the claims now pending in the subject application, the subject invention is directed to a folding apparatus. Such devices usually include two cooperating cylinders, the first of which is a sheet leading edge holding cylinder and the second of which is a folding jaw cylinder. The Examiner is requested to review the Background of the Invention section of the application and particularly paragraphs 003 to 007 for a discussion of the difference that exists between the type of folding apparatus that uses spur needle cylinders and the type of folding apparatus that uses gripper cylinders. In the past, it was not usual to utilize a common frame and drive assembly for both types of sheet leading end holding cylinders. In a spur needle cylinder, which is often used in the production of newspapers, the circumferential length of the cylinder is a whole number multiple of a length of a single sheet. That is because the spur needles need only to move radially on the sheet leading edge holding cylinder between a retracted, release position and an extended, gripping position.

Typical prior gripper cylinders utilize sheet leading end grippers that both extend and retract radially in the cylinder and also move circumferentially in and against the direction of cylinder rotation. Such gripper cylinders typically have a cylinder circumference that is greater than a whole number multiple of the sheet lengths of the sheets being severed from a web and held on the sheet holding cylinder of the folding apparatus. This is typically required to provide the space for the sheet grippers to move both radially and circumferentially. The sheets being cut from the endless web have to be accelerated, once they have been removed from the web, to allow them to be gripped on the sheet holding cylinder by the sheet leading end grippers.

As discussed in the subject application, the decision by a customer with respect to the type of sheet holding cylinder to be utilized on a folding apparatus being constructed for that customer resulted in the use of different frames and drive systems depending on whether the sheet holding cylinder was to be a spur needle cylinder or a gripper cylinder. Since the two types of cylinders were of different sizes, to accommodate the same number of sheets of printed product on their circumferential surface, it was not possible to use a single side frame or a single drive train for the two types of sheet holding cylinders. Such different frame and drive train requirements meant increased costs and less flexibility.

In marked contrast, in the subject invention, the sheet holding cylinder has the same circumferential speed as the folding jaw cylinder with which it cooperates. This means that a single side frame assembly and a single drive assembly can be used for either configuration of the sheet holding cylinder. A potential purchaser of a folding apparatus has much greater freedom of selection because the type of sheet holding cylinder, either spur needle or gripper, can be selected at a later stage of manufacture than was possible in the past. In addition, it is possible to change the type of sheet holding cylinder after the folding assembly has been built and is being used.

The folding apparatus in accordance with the present invention is made possible by the structure of the sheet gripper system, as depicted in detail in Figs. 2-5 of the drawings. The

leading end of a sheet is gripped by a profiled element, generally at 17 which is secured to a support beam 16. That support beam 16 is caused to move radially with respect to the gripper cylinder 01 and is also caused to move circumferentially with respect to the gripper cylinder 01. As may be seen in Fig. 1, the trailing end 11 of a prior printed section will be elevated slightly off the circumferential surface of the gripper cylinder 01 where the next successive printed section leading edge 12 is gripped by the next gripper assembly.

Claim 26, as amended clearly recites that the folding apparatus includes a first cylinder having a first circumferential speed and a first circumferential length. That first cylinder is configured selectively as one of a gripper cylinder and a spur needle cylinder. A drive arrangement is provided for this first cylinder. A relative position between the first cylinder and an associated second cylinder is the same when the first cylinder is configured selectively as a gripper cylinder and as a spur needle cylinder.

The second cylinder that cooperates with the first cylinder is embodied as a folding jaw cylinder and has a second circumferential length and a second circumferential speed. Both of these are equal to their counterparts of the first cylinder. Both are selected as being a whole number multiple of a defined length of product sections cut from a continuous web which has a web feeding speed that is the same as the first circumferential speed of the first cylinder and the second circumferential speed of the second cylinder. The product sections are secured on the first cylinder's circumference without spacings between adjacent ones of the production sections.

In the first Office Action on the merits, claims 27 and 46 were withdrawn from consideration. It was asserted for the first time that claim 20 is a generic claim. The prior action of November 16, 2007 was clearly indicated as being a Restriction Requirement, not an Election of Species Requirement. In the present Office Action, it is now asserted by the Examiner that claim 26 is a generic claim and that claims 27 and 46 are withdrawn from consideration as being drawn to non-elected inventions. Since claim 26 is identified as a generic claim, claims 27 and

46 are being maintained as withdrawn from consideration. Upon allowance of the generic claim 26 it is expected that the non-elected species claims 27 and 46 will be reinstated.

In the first Office Action on the merits, claims 26, 28-45 and 47 were rejected under 35 USC 112, second paragraph as being indefinite. It was noted that the language at the end of claim 26 was unclear. In response, that portion of claim 26 has been amended. It is believed that claim 26, as currently amended, complies with 35 USC 112, second paragraph and that it particularly points out, and distinctly claims the subject matter which applicants regard as the invention.

Claims 26, 28-41 and 47 were rejected either under 35 USC 102(b) or alternatively under 35 USC 103(a) as being either anticipated by, or obvious over U.S. patent No. 5,484,379 to Stab. It was asserted that Stab discloses a folder assembly comprising first gripper cylinder 1 and second folding jaw cylinder 26; cutter cylinder 2 and in a seating arrangement for the production of folded webs with specific lengths. It was asserted that limitations such as a common frame, a drive motor and bores and bearings are all well known in the art.

Claims 42-45 were rejected under 35 USC 102(a) as being anticipated by Stab or, in the alternative, under 35 USC 103(a) as being obvious over Stab in view of U.S. patent No. 6,159,138 to Lanvin. It was asserted that Lanvin discloses a folding assembly with a gripper cylinder operated by shafts 21; 31; control cam 36; cam disk 37 and second cam 30.

The primary reference to Stab, U.S. patent No. 5,484,379 is the U.S. counterpart of DE 42 29 059 which is discussed in the Substitute Specification of the present invention as being the type of prior art which the subject invention overcomes. In the Stab reference, there are provided a plurality of grippers 5 which are spaced about the circumference of a collection cylinder 1. There is clearly no discussion or suggestion in Stab that the collection cylinder 1 could be other than a gripper cylinder. In other words, cylinder 1 is not suggested as being selectively one of a gripper cylinder and a spur needle cylinder.

As may be seen very clearly in the sole drawing figure of the Stab reference, a leading end of each ribbon segment, which has been cut from the paper ribbon 13 is held by a respective one of the plurality of circumferentially spaced grippers 5. A cutting groove device, generally at 4, is located before, in the direction of rotation of the collector cylinder 1, each of the respective grippers 5. Once the trailing end of a first ribbon section has been severed by the cooperation of a cutting blade 3 on a cutting cylinder 2 with the cutting groove device 4, the newly created leading edges of the next successive, to be formed ribbon section, which is now still part of the paper ribbon 13, springs back or moves in opposition to the direction of rotation of the collection cylinder 1. This is discussed very specifically at Column 4, lines 45-50 of the reference. Such a spring back of the newly created leading end of the paper ribbon 13 is due to the fact that the collection cylinder 1 has a circumferential speed which is greater than the speed of travel of the paper ribbon 13. If the spring back were of sufficient magnitude, the newly created leading end of the paper ribbon 13 could not be gripped by the next following sheet gripper 5. In accordance with the invention described in the Stab reference, a system of belt conveyor assemblies 8 or 17 are in engagement with the collection cylinder 1 over the wrap angle of the paper ribbon 13 on the surface of the collection cylinder.

The speed of the collection cylinder 1 is greater than the speed of the paper ribbon 13. The Examiner is asked to note the discussion at Column 4, lines 33-35. The draw or pull on the paper ribbon 13, which is a result of the advance of the collection cylinder 1 and of the conveyor belt 24 results in a prestress being imposed on the incoming paper ribbon 13. It is this prestress that tends to cause the newly created leading end of the still unsevered paper ribbon 13 to spring back once the paper ribbon has been cut at the cutting point depicted at the lower right portion of the sole drawing figure.

Each successive ribbon section leading end, as held by its associated gripper 5, is separated circumferentially on the collection cylinder 1 of Stab from the trailing end of the previously cut ribbon section. Such a separation is evident in the portion of the sole drawing

figure just above and to the left of the reference numeral 24 and its associated lead line and arrow head. That separation is the result of the prestress which is imparted to the paper ribbon 13 as it is stretched or stressed by the advance; i.e. the increased speed of the collection cylinder 1.

In claim 26, as currently amended, it is set forth that the first circumferential speed of the first cylinder and the second circumferential speed of the second cylinder are the same. It is also recited that both of these circumferential speeds are the same as the feeding speed of the continuous web. The Stab reference is not the same since it teaches that the speed of the collection cylinder 1 is greater than the speed of the paper ribbon and thus forms a prestress in that paper ribbon. There is not teaching or discussion in Stab of a speed of the folding jaw cylinder 26. Stab thus does not teach or disclose this aspect of currently amended claim 26.

Claim 26 also recites that both the first cylinder and the second cylinder have the same circumferential length. That circumferential length is recited as being a whole number multiple of a product section length. The result is, as is also recited in currently amended claim 26 that the product sections are received on the first cylinder circumference without spacings between adjacent ones of the product sections. In the Stab reference there is clearly depicted a gap between each of the ribbon sections. That gap is the result of the spring back of the newly created leading end of the paper ribbon which is created at the point of cooperation of a cutting blade 3 and its associated cutting groove device 4, as depicted at the lower right of the Stab sole drawing figure.

Stab is clearly silent as to any seating arrangement of its first cylinder and second cylinder. Stab also, as indicated above, does not suggest that its collection cylinder could be anything other than the gripper cylinder depicted and described. Stab does not depict, recite, or suggest in any way that its non-existent seating arrangement could be used to support the first cylinder configured selectively as a gripper cylinder and a spur needle cylinder. Stab does not depict, recite or even suggest that a relative position between the first cylinder and the second

cylinder, in the claimed seating position, would be the same when the first cylinder is configured selectively as one of a gripper cylinder and a spur needle cylinder.

Stab cannot anticipate the folding apparatus of claim 26, as originally claimed and even more clearly as currently amended. It does not show all of the claimed elements. It also does not render currently amended claim 26 obvious to one of skill in the art. Stab is directed only to a gripper cylinder whose circumferential speed is greater than that of the paper ribbon. The resultant prestress and spring back of the Stab web requires the use of a conveyor belt system to compensate for. The resultant spacings between the successive ribbon sections on the surface of the Stab collection cylinder 1 is directly contrary to the language of claim 26, as amended. Stab thus does not render currently amended claim 26 obvious.

All of the rest of the claims in the subject patent application depend from believed allowable, currently amended claim 26. With respect to claims 42-45, the teachings of the secondary Lanvin patent do not supply the elements which are missing from the Stab reference. In addition, the structure depicted in Lanvin is quite different from that shown in the subject invention and recited in claims 42-45. In the subject device, as seen in Figs. 2-5, the profiled element 17, which includes the gripper tip 18, is secured to a support beam 16. That support beam is caused to move radially by rotation of the first arm 19. That support beam is also caused to pivot about a shaft 27 by rotation of a second arm 23. Lanvin does not disclose, or suggest that structure. Thus, Lanvin, in conjunction with Stab, does not render obvious these claims. Stab, by itself, clearly does not anticipate these claims since it is devoid of any teaching of how the grippers 5 are supported or are caused to move.

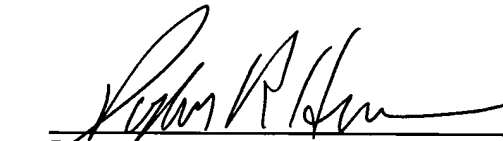
SUMMARY

The Substitute Specification has been amended, without the addition of new matter, to correct a minor typographical error. Claims 27 and 46 have been withdrawn from consideration pending the allowance of a generic claim. Claim 26, and several of the claims that depend from it, have been amended. It is believed that all of the claims now pending in the subject application are patentable over the prior art cited and relied on, taken either singly or in combination. Allowance of the claims and passage of the application to issue is respectfully requested.

Respectfully submitted,

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